



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/602,121      | 06/23/2003  | Wei Jiang            | 15436.250.14.1.1    | 9113             |

22913 7590 02/15/2005

WORKMAN NYDEGGER  
(F/K/A WORKMAN NYDEGGER & SEELEY)  
60 EAST SOUTH TEMPLE  
1000 EAGLE GATE TOWER  
SALT LAKE CITY, UT 84111

EXAMINER

LEE, JOHN D

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 02/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/602,121 | <b>Applicant(s)</b><br>JIANG ET AL. |  |
|                              | <b>Examiner</b><br>John D. Lee       | <b>Art Unit</b><br>2874             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____  | 6) <input type="checkbox"/> Other: ____                                     |

The four (4) sheets of drawings filed in this application are acceptable.

The specification has not been studied to the extent necessary to determine all possible errors therein. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in – (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7, 9, 10, 17, and 19 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by U.S. Patent Application Publication 2003/0174937 A1 to Huang et al. Huang et al discloses an optical multiplexing/demultiplexing device comprising a housing (dashed line 22') receiving a plurality of optical fibers adapted to carry optical signals; a filter 84 disposed within the housing, the filter transmitting specific optical signals having a predetermined wavelength range and reflecting specific optical signals having a different predetermined wavelength range; a first lens 72 coupled to the housing and optically communicating with the filter, the first lens positioned relative to the filter and the plurality of optical fibers to collimate, focus and selectively route the optical signals; and a second lens 78 coupled to the housing and optically communicating with the filter, the second lens positioned relative to the filter and the plurality of optical fibers to collimate, focus and selectively route the optical signals. Huang et al discloses in paragraph [0026] that the first and second lenses 72 and 78 may be ball lenses. The

plurality of optical fibers in Huang et al include at least an input optical fiber, an output optical fiber, an add optical fiber, and a drop optical fiber. One embodiment in the reference has the input optical fiber and the drop optical fiber ~~are~~ paired together (on one side of the housing), while the output optical fiber and the add optical fiber are paired together (on the opposite side of the housing). Another embodiment therein has the input optical fiber and the output optical fiber paired together (on one side of the housing), while the add optical fiber and the drop optical fiber are paired together (on the opposite side of the housing). Huang et al further discloses in paragraph [0024] that each of the fiber end faces may be polished at an angle to suppress reflections.

*ADL*

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 11, 12, 15, 16, and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0174937 A1 to Huang et al. Huang et al does not disclose the material from which the ball lenses **72** and **78** may be fabricated. The person of ordinary skill in the art, then, would certainly have found it obvious to fabricate them from any known, suitable, optically transmissive material. The use of glass, crystal, sapphire, semiconductor, or polymer materials for the ball lenses **72** and **78** of Huang et al would thus have been obvious. Huang et al also does not disclose how the diameter of each lens **72** and **78** is determined. Because the device is used in optical multiplexing/demultiplexing operations, however, the ordinarily skilled artisan would know and understand that the diameter of each lens is at least partially dependent

upon the wavelengths of light that are intended to be transmitted therethrough and the material of which the lens is formed. These considerations would thus have been obvious (to the ordinarily skilled artisan) in the Huang et al device. Although there is no specific mention in Huang et al of antireflection films or coatings on the lens surfaces or the fiber end faces, it is quite clear that antireflection is an important consideration therein (see the last sentence in paragraph [0024], for example). Considering the importance of antireflection in Huang et al along with the commonality in the art of applying antireflection films or coatings to the surfaces of lenses and/or fibers, it would have been obvious to use such films or coatings in the Huang et al device. Finally, Huang et al does not disclose an outer secondary housing to surround the primary housing (dashed line 22'). Since this would serve to increase protection and durability of the device, such a secondary housing would have been obvious to the person of ordinary skill in the art.

Claims 5, 6, 13, and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0174937 A1 to Huang et al in view of U.S. Patent 4,290,667 to Chown. Huang et al does not disclose the use of “spacer rings” to accurately position the lenses with respect to the filter. The use of “spacer rings” for this purpose, however, has long been known in the art of spherically lensed optical fiber couplers/connectors. Chown (Figure 3) is cited as evidence of this established knowledge and usage. Since Chown and Huang et al are from the same general field of endeavor, and since Chown teaches that “spacer rings” provide accurate positioning of lenses, the use of such “spacer rings” in the Huang et al device would have been obvious to a person of ordinary skill.

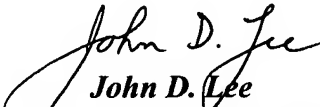
Claims 8 and 20-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0174937 A1 to Huang et al in view of U.S. Patent 6,767,139 to Brun et al. Huang et al does not disclose the use of an adhesive for bonding any of the components within the housing. Huang et al does, though, emphasize the importance of maintaining alignment of the components (see paragraphs [0024] and [0043], for example). The person of ordinary skill in the art would know that, in order to maintain alignment, some sort of fixation must be effected. Brun et al teaches the use of an adhesive to bond the various components of a similar optical device within a housing. The Brun et al device is similar to that of Huang et al in that it comprises a plurality of optical fibers adapted to carry optical signals; a wavelength-selective filter, and first and second lenses before and after the filter, these components arranged and aligned within a housing. Given the similarity of Brun et al and Huang et al, and since maintaining alignment of components is a high priority in Huang et al, it would have been obvious to a person of ordinary skill in the art to use an adhesive in Huang et al to bond the aligned components (lenses, fibers, ferrules, filter) to the housing to maintain the necessary alignment. Providing such an adhesive through adhesive “ports” would also have been obvious, as would the use of support members working in conjunction with the adhesive.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication 2002/0191294 A1 to Duggan describes an optical multiplexing/demultiplexing device comprising essentially the same elements as the device being claimed (see Figures 6a, 6b, and 13, along with claims 3 and 5 which indicate that the lenses therein can be spherical (ball) lenses). Another

wavelength-selective optical splitting/coupling device utilizing ball lenses is disclosed in U.S. Patent 6,332,051 to Ai et al.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.

  
**John D. Lee**  
**Primary Patent Examiner**  
**Group Art Unit 2874**